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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,501	03/01/2002	Frank Johannes Alfred Dirk Bakkeren	ACO 2701 PIUS	7915

7590

09/18/2006

Lainie E Parker
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Intellectual Property Department
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EXAMINER

BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,501

Applicant(s)

BAKKEREN ET AL.

Examiner

Susan W. Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07-05-2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Arguments

Applicant's arguments filed 07/05/2006 have been considered.

Boeckeler et al: Applicant argues that Boeckeler et al do not use extended urethane acrylate resins obtained from tall oil fatty acids as oxidatively drying polyester resins. Applicant states that the unsaturation necessary for oxidative drying is no longer present due to UV reactive functionalities. This argument is not persuasive. Applicant has not provided any evidence or chemical argument to support the allegation that the tall oil fatty acid unsaturation in the backbone is no longer present because UV curable acrylate groups are present. Boeckeler et al teach that the disclosed coating compositions are cured in a two-stage process herein the first cure is photopolymerization and the second cure is heat or air drying. Applicant further argues that Boeckeler et al teach that thiols should be reacted with pendent allylic groups (column 1, lines 56-59). It is agreed that Boeckeler et al teach UV initiated reaction of thiol and allyl groups. This argument is not persuasive because the instant claims only require the presence of the recited components in a composition. The "oxidatively drying polyunsaturated condensation products...optionally other building blocks" encompasses each of the alkyd resins disclosed by Boeckeler et al.

GB '749: Applicant argues that GB '749 discloses Michael reactions that are nucleophilic, non-radical reactions that cannot be initiated by UV. This argument is not persuasive. GB '749 clearly teaches reaction of a polyunsaturated polyester and a polythiol compound and that the thiol-ene reaction can be catalyzed by tertiary amines. Ostlie et al clearly teach that thiol-ene compositions can be photopolymerized in the presence of a photoinitiator. Ethylenically unsaturated groups are considered to be polymerizable or otherwise reactive with thiol groups whether in a polymer backbone or pendent from the backbone or in a separate compound, in the absence of evidence to the contrary.

US 6,476,183 double patenting rejection: Applicant argues that Boeckeler et al teach thiol-allylic reactions and does not disclose UV promoted thiol curing of the polycondensation products of the

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instantly claimed composition. Applicant further argues that it is not obvious to use a thiol-allylic promoting photoinitiators for curing non-allylic alkyds with thiols. This argument is unpersuasive. Claim 1 of US '183 recites an oxidatively drying polyunsaturated condensation product having pendant groups comprising unsaturated C-C bonds. Thus it is the examiner's position that combination of the claims of US '183 with the teaching of Boeckeler et al to add a photoinitiator to a composition comprising a polythiol and an alkyd resin having pendent allyl groups and a polythiol makes addition of a photoinitiator to the composition of the claims of US '183 obvious. The examiner notes that applicant has provided comparative examples in the instant specification that show significantly faster cure times for compositions of the instant invention containing a photoinitiator compared with compositions containing a siccative curing agent. However, the instant claims are not considered to be commensurate in scope with the showing.

Claim Rejections under 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-5, 11-13, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boeckeler et al (4,377,457). Boeckeler et al disclose dual cure coating compositions using either oxidative crosslinking of backbone drying oil unsaturation followed by UV cure or by UV activated reaction of pendent allylic groups with polymercaptans in the presence of a photoinitiator, followed by melamine heat cure. See column 6, lines 3-42. The polyester polyol is not specifically described as one obtained from a fatty acid or ester. However, Boeckeler et al disclose numerous oxidatively drying resins from tall oil fatty acids, including an extended urethane acrylate resin (columns 2-3).

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It would have been obvious to one skilled in the art at the time of the invention to employ an oxidatively drying resin from tall oil fatty acids, such as an extended urethane acrylate resin, as the polyester in a composition with a polythiol and photoinitiator. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of success because the acrylate groups on the tall oil derived polyester urethane would have been expected to undergo UV initiated reaction with the thiol groups of the polythiol in a similar manner to the thiol-ene reaction with allylic groups in the Table VI example. One of ordinary skill in the art at the time of the invention would also have been motivated by an expectation of providing air drying cure of the oxidatively drying groups instead of or in addition to the melamine heat cure in the example. Boeckeler et al provide motivation by teaching that the disclosed coating compositions are cured in a two-stage process herein the first cure is photopolymerization and the second cure is heat or air drying cure.

Claims 1-5, 7, 8, 11-15 and 17 are rejected under 35 U.S.C. 103(a) as obvious over Boeckeler et al in view of Ostlie (5,876,805). Boeckeler et al teach compositions comprising an oxidatively drying polyester and an amine or polythiol compound that are UV curable in the presence of a photoinitiator. Ostlie discloses visible light polymerizable thiol-ene compositions comprising at least one acyl phosphine oxide photoinitiator. See column 3, line 66, to column 4, line 67, and column 6, lines 13-38.

It would have been obvious to one skilled in the art at the time of the invention to substitute an acylphosphine oxide photoinitiator, for the UV photoinitiator in the polyene-thiol compositions disclosed by Boeckeler et al, as taught by Ostlie. Both references teach analogous thiol-ene compositions. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a visible light cure instead of a UV cure. Boeckeler et al teach UV curing in the presence of a photoinitiator. Ostlie provides motivation to substitute visible light curing for UV curing by

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teaching that analogous alkyd resins containing acrylate curable groups and polythiols are visible light curable under the influence of an acylphosphine oxide photoinitiator.

Claims 1-5, 7, 8, 11-15 and 17 are rejected under 35 U.S.C. 103(a) as obvious over GB 2 166 749 in view of Ostlie (5,876,805). GB 2 166 749 discloses coating compositions comprising a polythiol and a condensation polymer having autoxidisable groups derived from drying oil or semi-drying oil fatty acids that provide for additional cure by oxygen in air (page 2, lines 22-28). GB '749 does not mention photoinitiators. Ostlie discloses visible light polymerizable thiol-ene coating compositions comprising at least one acyl phosphine oxide photoinitiator. See column 3, line 66, to column 4, line 67, and column 6, lines 13-38.

It would have been obvious to one skilled in the art at the time of the invention to add a photoinitiator, such as an acylphosphine oxide photoinitiator, as catalyst for the polyene-thiol compositions disclosed by GB '749, as taught by Ostlie. Both references teach analogous thiol-ene coating compositions for the automotive industry. GB '749 teaches that it is desirable to use a catalyst in composition comprising a thiol component (page 3, lines 59-61). Ostlie teaches visible light curing of analogous alkyd resins containing acrylate curable groups and polythiols under the influence of an acyl phosphine oxide photoinitiator.

Claim 6 is rejected under 35 U.S.C. 103(a) as obvious over Boeckeler et al or over GB 2 166 749 in view of Ostlie, as applied to claim 1 above, and further in view of Doomen et al (5,859,135). See the rejections set forth above. Doomen et al teach aqueous coating compositions comprising an alkyd resin and a photoinitiator. See column 2, line 11, to column 3, line 35, column 4, line 58, to column 5, line 25, column 6, line 63, to column 7, line 46, column 13, lines 41-45. Crosslinking compounds include compounds containing active hydrogen. Doomen et al do not mention thiol compounds.

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It would have been obvious to one skilled in the art at the time of the invention to employ the alkyd resin disclosed by Doomen et al in the compositions taught by Boeckeler et al or by GB '749 in combination with Ostlie in order to provide an aqueous coating composition, as taught by Doomen et al. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a useful coating composition and avoiding the presence of organic solvents.

Claim 9 rejected under 35 U.S.C. 103(a) as obvious over Boeckeler et al or over GB 2 166 749 in view of Ostlie, as applied to claim 1 above, and further in view of Moyer et al (4,078,118). GB discloses a specific thiol compound, such as pentaerythritol tetrakis(mercaptopropionate) at page 3, lines 40-52. Moyer et al disclose analogous thiol compounds based on pentaerythritol comprising a fatty acid component, such as linoleic acid. Moyer et al teach that the disclosed pentaerythritol esters comprising a fatty acid component provides improvement in slip properties (column 14, lines 35-42). It would have been obvious to one skilled in the art at the time of the invention to employ a thiol-functional pentaerythritol ester of long chain fatty acid taught by Moyer et al, as the thiol compound in the compositions disclosed by Boeckeler et al or by GB '749 and Ostlie. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of successfully improving slip properties in the coating compositions disclosed by Boeckeler et al or GB '749 and Ostlie, as taught by Moyer et al.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-9 and 11-17 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 6,476,183 in view of Boeckeler et al or Ostlie. Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons. US '183 claims coating compositions comprising an oxidatively drying condensation product having more than 20% pendent groups comprising unsaturated carbon-carbon bonds, a polythiol and a siccative. The condensation product set forth is encompassed by the instantly claimed condensation products. The difference from the instantly claimed compositions is the instantly recited photoinitiator. Each of Boeckeler et al and Ostlie teaches photopolymerizing oxidatively drying condensation products containing ethylenically unsaturated group in the presence of a photoinitiator. It would have been obvious to one skilled in the art at the time of the invention to add a photoinitiator to the composition set forth in the claims of US '183 and to photopolymerize the compositions, as taught by Boeckeler et al or Ostlie in analogous art. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of achieving a complete cure by exposure to UV or visible radiation and by oxidative drying.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH**

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shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W. Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SB
9/3/06



Susan W Berman
Primary Examiner
Art Unit 1711